Attachment

The following are EPA's detailed comments on the draft Quality Assurance Project Plan for the Hood Canal Dissolved Oxygen Program, Integrated Assessment and Modeling Study, Year 1 Activities (August 2005).

Page	Comment
3	I suggest adding the topic "Conceptual Model for Hood Canal Dissolved Oxygen" early in the document. This section should include some simple diagrams and schematics that draw the connections between stressors on dissolved oxygen that will be examined in the study.
6	The list of potential factors causing an increase in hypoxia could be clarified. Again this should be an outgrowth of description of the conceptual model. I would recommend an outline of processes something like the following: *Estuarine Processes* *Boundary hydrodynamics and mass inputs from wider Puget Sound* *Hood Canal density and circulation* *River Inflows* *Flow* *Nutrients* *Dissolved Oxygen* *Shoreline Inflows* *Groundwater* *Flow* *Nutrients* *Point sources* *Meteorological Processes* *Critical conditions – temperature and wind*
8	The language regarding the linkage of this project to TMDL development should be clarified and strengthened. This plan should state clearly that it is the intent of HCDOP to provide technical tools that will be useful for Ecology's development of a TMDL for Hood Canal. This plan does not need to address TMDL targets, which will be Ecology's job, so I suggest striking the last sentence.

8	The "Background" discussion is another partial view into the conceptual model. This can be folded into that new section of the document. Note that nutrient inputs from exchange with Puget Sound boundary waters is not mentioned as a nutrient source.
10	Minor edit to last sentence on page. "Nitrogen is the primary **nutrient** parameter of concern."
12-13	Nitrogen loading estimates are a fundamentally different type of "data" than the monitoring data also described in this section. I suggest separating monitoring data from nitrogen loading assessments into separate report sections. Perhaps loading estimates should be moved to the "Background" section.
15	The role of HCDOP in monitoring is unclear. The second paragraph says that "freshwater monitoring will supplement" ongoing monitoring by numerous organizations. Has there been any planning of the monitoring to date, or has its rough consistently to date been a by-product of informal discussions among interested parties? Is one of HCDOP's roles to provide better planning and/or funding for these organizations?
16	HCDOP's congressional funding and charge should be described.
16	I am unclear as to what Figure 4 is conveying. It is titled a "fiscal" organizational chart. USGS should therefore not be under HCDOP, since it is funded separately according to the preceding paragraph. Also, the figure suggests that funding could potentially flow from HCDOP to UW-APL to HCSEG to the state of Washington. Is that correct?
21	Some general comments on modeling approach section: 1. See concerns in cover letter to these comments 2. Computer system requirements to run each model should be described. 3. Plans to conduct any peer review should be described. 4. Ecology's modeling plans should be added if appropriate.
21	I suggest more clarity on the purpose of various models. I can envision two specific purposes of the terrestrial model. First, to estimate the effects of land use changes on tributary water quality. Second, to fill gaps in the tributary monitoring record to improve the estuary model development.

23 Suggest "The Princeton Ocean Model will simulate the hydrodynamics of the entire Puget Sound **in order to provide boundary conditions (mass and energy inputs) for the Hood Canal model."**

27 Note that water temperature models require estimates of pressure and cloud cover in addition to parameters discussed in first paragraph.

36 General comment on water quality monitoring: While most plans include complete nutrient analyses, biochemical oxygen demand (BOD) is not included. This will require modelers to assume concentrations for BOD at model boundaries and advective inputs to the canal. Has this data gap been considered by HCDOP and others?

39 Table 9. No Ammonia analysis.

40 Table 10. What is "TDN"?

41 Tables 11 and 12. No in-situ monitoring.

48 Add section on Weather Data. Should include National Weather Service locations (and parameters) and other local sources of data like marine buoys.

49 Is there any information on nitrate and ammonia in the Alderbrook discharge?

64 This discussion does not answer the fundamental question of a typical data user: How can I gain access to the electronic data generated under this project? The cited nodes offer graphical data presentations but not download capability for electronic data. Does HCDOP envision data download from these sites in the future? Is there a project plan to get from here to there under development? In the meantime, the document should probably state the obvious: the data is currently distributed among the organizations collecting it, and analysts must contact data owners to obtain electronic data.

Also, it is unclear how data collected by Dept. of Ecology, USGS, and National Weather Service are included in these nodes. Ecology and USGS sites support downloading of data. National Weather Service requires a subscription.